Attachment 1

WETLAND/FLOODPLAIN ASSESSMENT FOR SITE CHARACTERIZATION ACTIVITIES FOR OUs 1, 2, 5 AND 6 AND THE GEOLOGIC CHARACTERIZATION PROGRAM

INTRODUCTION

Certain site characterization activities are to be undertaken by the Department of Energy (DOE) at its Rocky Flats Plant (RFP) north of Golden, CO. The activities are to be carried out pursuant to requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), and as part of DOE's implementation of the Interagency Agreement (IAG) between DOE, the Environmental Protection Agency and the Colorado Department of Health. This site characterization involves sampling of soil, sediments, surface water and groundwater to identify the presence, nature and extent of contaminants, if any. The site characterization activities covered in this document are those in a floodplain/wetland in operable units (OUs) 1 (881 Hillside), 2 (903 Area), 5 (Woman Creek) and 6 (Walnut Creek) and those under the site-wide Geologic Characterization Program.

PROJECT DESCRIPTION

The site characterization activities will be in the floodplains/wetlands of Woman Creek, Walnut Creek and South Walnut Creek. Figures 1 through 14 show the location of surface water, sediment, ground water, soil and soil gas sampling sites, including those in floodplains/wetlands. The arrows on figures 1, 3 and 6 through 11 show 24 sites where drilling may take place in a floodplain. The site characterization activities consist of 1) locating new surface water and sediment sampling stations, 2) drilling new wells and boreholes, 3) establishing soil sample sites and 4) collecting surface water, groundwater, sediment, soil and soil gas samples. Each of these activities is described below.

Locating new surface water and sediment sampling stations consists of driving a stake in the ground to mark a spot which can be returned to for future sample collection. Due to the nature of such sites, virtually all surface water and sediment sampling will be in a floodplain, and most will also be in a wetland. New and existing surface water and sediment sampling sites are shown in the attached figures, noted by SW-xx and SED-xx respectively.

Drilling new wells, boreholes and soil gas sampling holes involves driving a drilling rig to the designated site and drilling the hole, typically within a day. Wells are typically four-to-six inches in diameter while boreholes are generally somewhat smaller. As the drill bit advances, drill cuttings are brought to the surface and shoveled into 55-gallon drums for analysis of any contaminants, storage and ultimate disposal. Samples of drill cuttings from boreholes are analyzed for soil type and constituents before being drummed. When drilling is completed, surface evidence of the activity includes downed vegetation around the immediate site and, in the case of wells, an eight-inch metal pipe sticking two-to-three feet above the ground. Approximately 24 wells and boreholes will be drilled within a floodplain. It is possible, but unlikely, that some of those could be in wetlands.

Establishing soil sample sites can be accomplished by three procedures. One is to simply determine the point from which a small quantity (two-to-three tablespoons) of surficial soil will be collected. The second is using a backhoe to dig pits that are typically nine feet long, five feet wide and four feet deep. These pits are generally dug and backfilled within a day. The third procedure is drilling a borehole. Boreholes, as mentioned above, are small-diameter holes, usually fairly shallow, which are drilled to collect the cuttings.

Floodplains at RFP tend to be much larger than wetlands: generally 100- to 200-feet wide. Moving wells up to half that distance to get them out of the floodplain could seriously compromise the results of the program and produce useless data. Given the fact that the drilling program will have no significant adverse effects on the floodplain or the environment within it, such a compromise is unnecessary.

This alternative is dismissed as unreasonable because it would seriously compromise the results of the site characterization program without any offsetting benefits.

IMPACTS TO FLOODPLAINS/WETLANDS

Activities within floodplains/wetlands are of four types: establishment of new sediment and surface water sampling locations, well and borehole drilling, digging of soil sample pits and sample collection. As described above, establishing new sampling locations involves only putting a stake or post in the ground to mark a spot which can be returned to for future sample collection and hence has no floodplain/wetland impacts.

Well drilling involves parking a drilling rig at a site for approximately one day before moving it to another location, leaving behind nothing more than a metal pipe extending two-to-three feet above the ground and a small area of downed vegetation. Generally, areas of standing water or wet soil will be avoided because of the problems such conditions present to drilling. Because wetlands at RFP tend to either be linear (two-to-six-feet wide and of varying length) or come in increments of only a few hundred square feet, well locations will typically be adjusted in the field the few feet generally necessary to avoid standing water or very wet soils. There may be situations where a proposed well location cannot be moved out of a wetland for one reason or another. Such a case could arise where the location is necessary in order to strike a specified target. In these cases, the well will be completed in the wetland. Most wetlands at RFP, unless they are in a pond or flowing stream, are areas where soil is damp enough to support wetland vegetation but is not saturated. In terms of effects on the environment, drilling in such areas is essentially the same as drilling in dry areas. Based on the description given above of the well drilling procedure and its minimal impacts, no significant impacts are expected to wetlands from drilling.

Digging soil sample pits, which could occur in floodplains but is very unlikely to occur in wetlands, involves use of a backhoe at a site for one day to dig and backfill a pit. Other than downed vegetation, and destroyed vegetation at the excavation itself, digging soil sample pits has no impacts to a floodplain.

Sample collection involves arriving at a sampling location, collecting a small quantity of the desired medium and leaving, resulting in no impacts to the environment or to the floodplain.

In summary, because of the nature of the activities being undertaken, the projects are considered to have no positive, negative, direct, indirect long-term or short-term effects on the floodplains or wetlands at RFP beyond the very small and temporary effects described.

Soil sampling pits and boreholes may be located within a floodplain, but are typically not located in wetland areas. Soil samples will be collected from within some of the square plots shown in figure 2. Plots 38, 51, 52, 57, 81, 96, 109 and 115 include areas in a floodplain. Therefore, soil samples taken from these plots have the potential to be taken from that part of the plot within a floodplain. Exact locations of soil sampling sites have not yet been determined. Surficial soil sampling sites may be located anywhere there is soil.

Collection of samples consists of driving or walking to a sampling site or well and collecting up to a few pounds of the desired medium, except in the case of soil gas samples. Soil gas samples are obtained by dropping a collection device down the soil gas well and retrieving it.

All samples will be removed from the field and sent to on-site or off-site laboratories for analysis.

Because of the nature of the site characterization activities, no significant adverse impacts are expected to lives, property or the natural and beneficial values of floodplains, or to the survival, quality and natural and beneficial values of wetlands.

ALTERNATIVES

No Action Alternative

The site characterization program, of which the floodplain/wetlands sampling is a part, is being undertaken under the provisions of CERCLA and RCRA, and pursuant to the IAG. Both the statutes and the Agreement require clean-up of contaminated sites. This clean-up cannot be reasonably undertaken without field sampling to identify existing conditions. Therefore, the No Action Alternative is dismissed as unreasonable.

No Sampling in Floodplains or Wetlands

Among the most important concerns about contamination at RFP is the possibility of its presence in surface water and/or groundwater, and the potential for contaminated water at RFP to pose a threat to drinking water supplies. Therefore, sampling surface water is fundamental to identifying the nature and extent of contamination at RFP. Most surface water at RFP is in a floodplain and also in wetland areas. Thus it is virtually impossible to sample surface water without being in a floodplain and a wetland.

Similarly, sediments, which are typically in or under bodies of water, can be sampled only in a floodplain and, most often, a wetland. Given the lack of negative impacts from sampling, this alternative is dismissed as being seriously harmful to the site characterization program with no offsetting benefits.

No Drilling in Floodplains or Wetlands

The various drilling programs (groundwater wells, soil sample boreholes and soil gas holes) are carefully designed to help identify various characteristics of specific targets. Some holes are designed to delimit the edge of contaminant plumes, others to better understand the geology and hydrology in certain locations, and still others to identify the contaminants that may exist underground. In each case, locations are chosen carefully and deliberately to yield the best results by hitting specified targets. Because most of the wetlands at RFP tend to be either linear or very small, moving a well a few feet can avoid the wetland without compromising the integrity of the program or affecting the results. As indicated above, such action will be taken where possible. There will be cases where a well cannot be relocated, or not relocated far enough, to avoid a wetland, and in such cases, the well will be completed in the wetland. As described above, the drilling program is expected to result in virtually no adverse impacts to wetlands at RFP.